

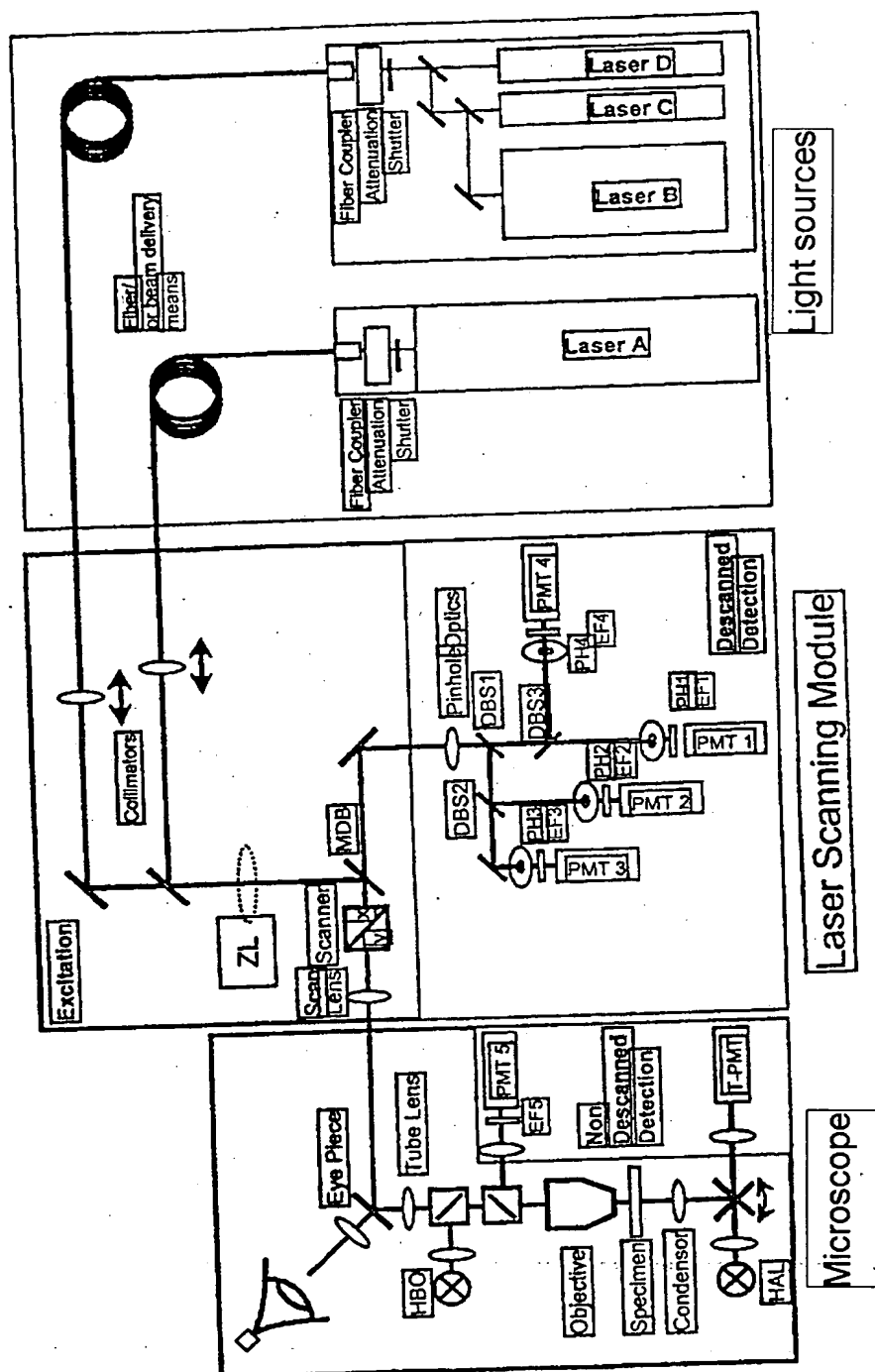
a.)

a) Single-photon absorption

b.)

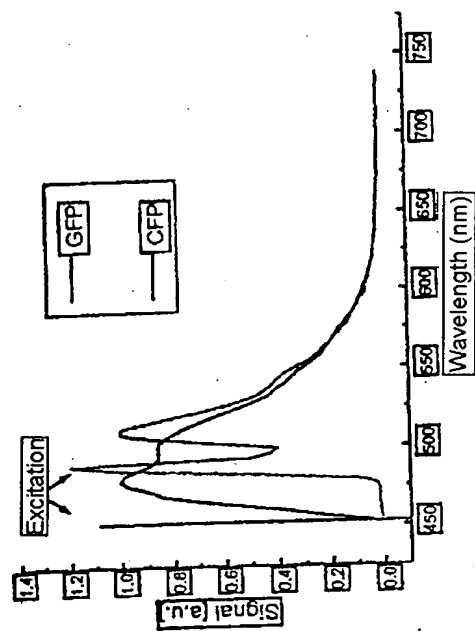
b) Multiphoton absorption

Figure 1:

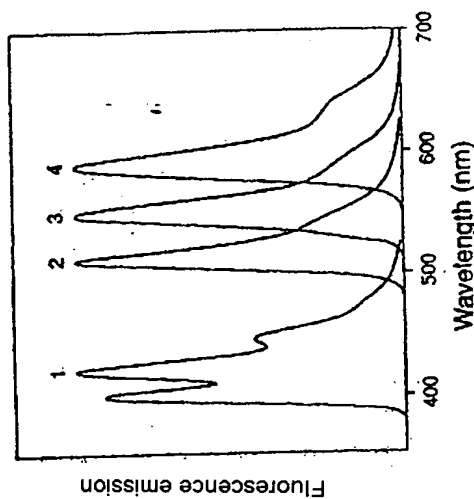


LSM construction (prior art)

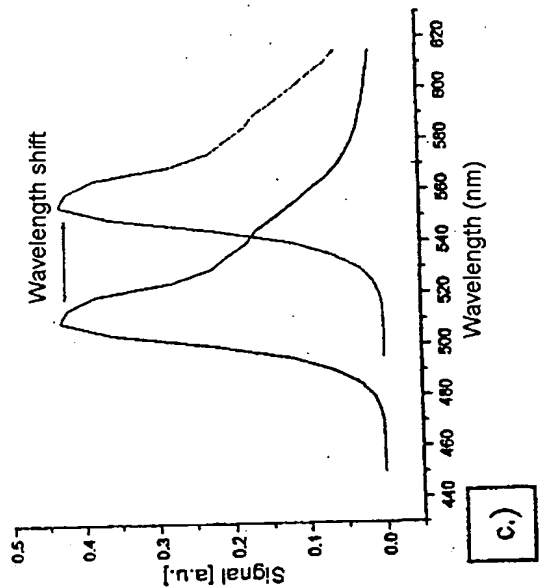
Figure: 2



b.)



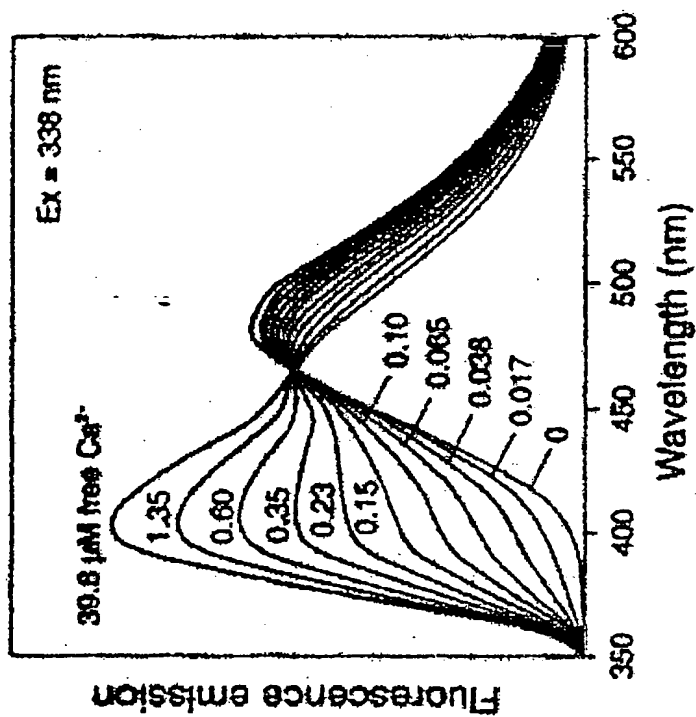
a.)



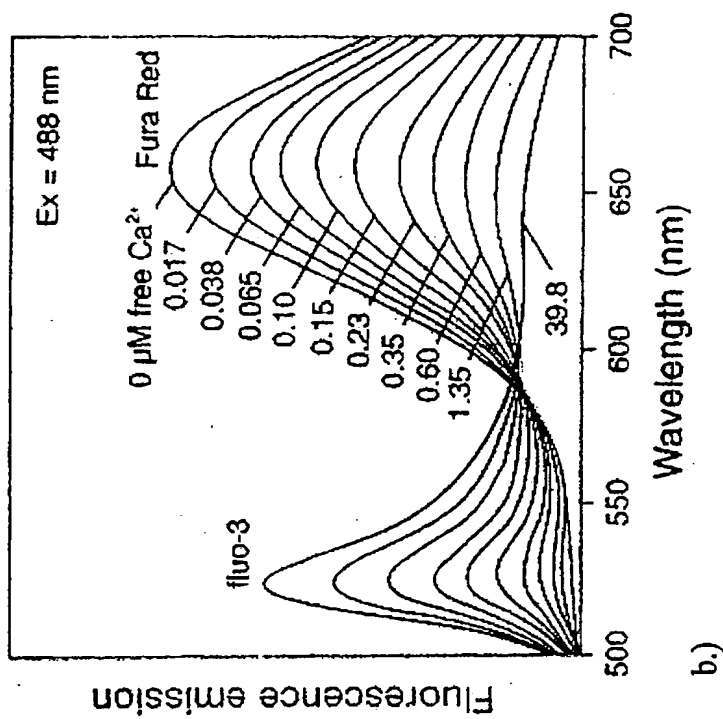
c.)

Typical spectra a) Dyes, b) fluorescent proteins
c) wavelength shift as a function of environment, d) FRET

Figure: 3



a.)



b.)

Figure: 4

Typical spectra with ratiometric measurements

a) a dye with emission ratio; b) two dyes with ion-dependent signals

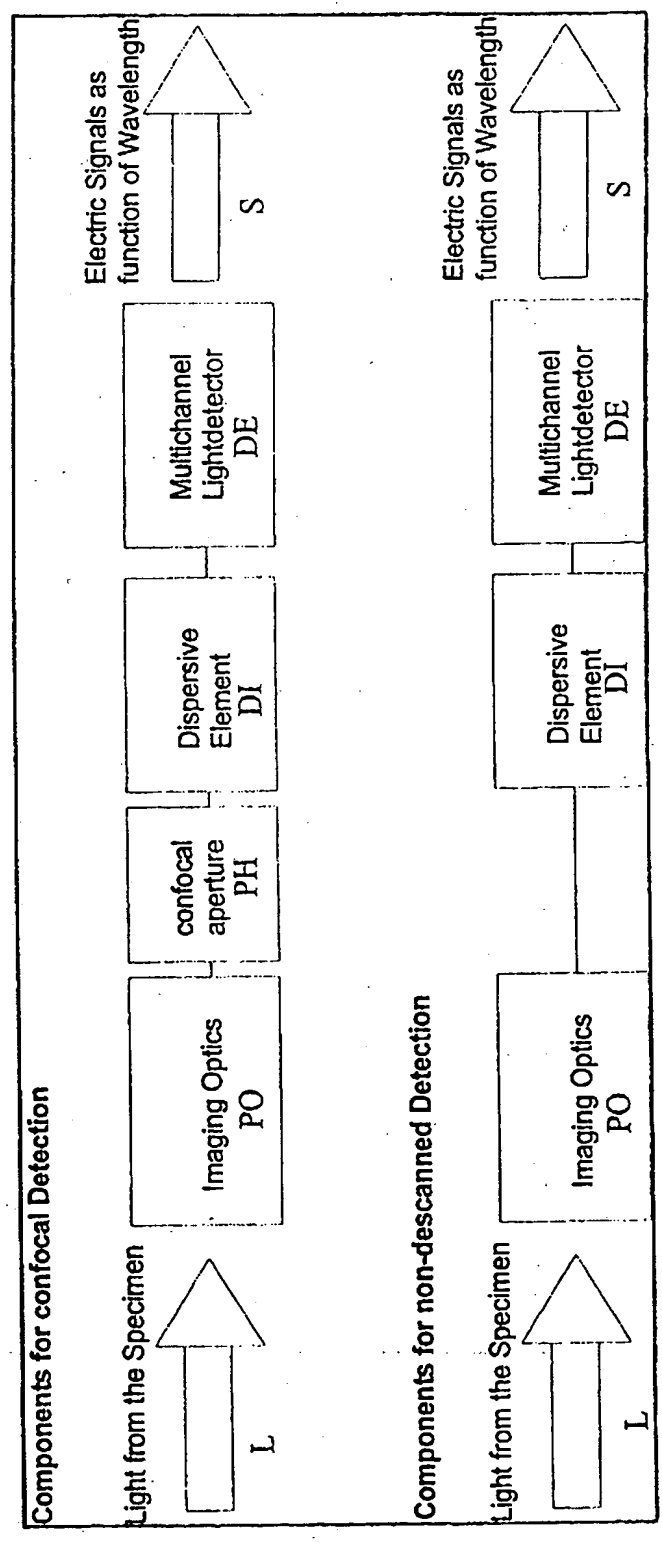


Figure: 5
Block diagram showing construction of detector unit-optics

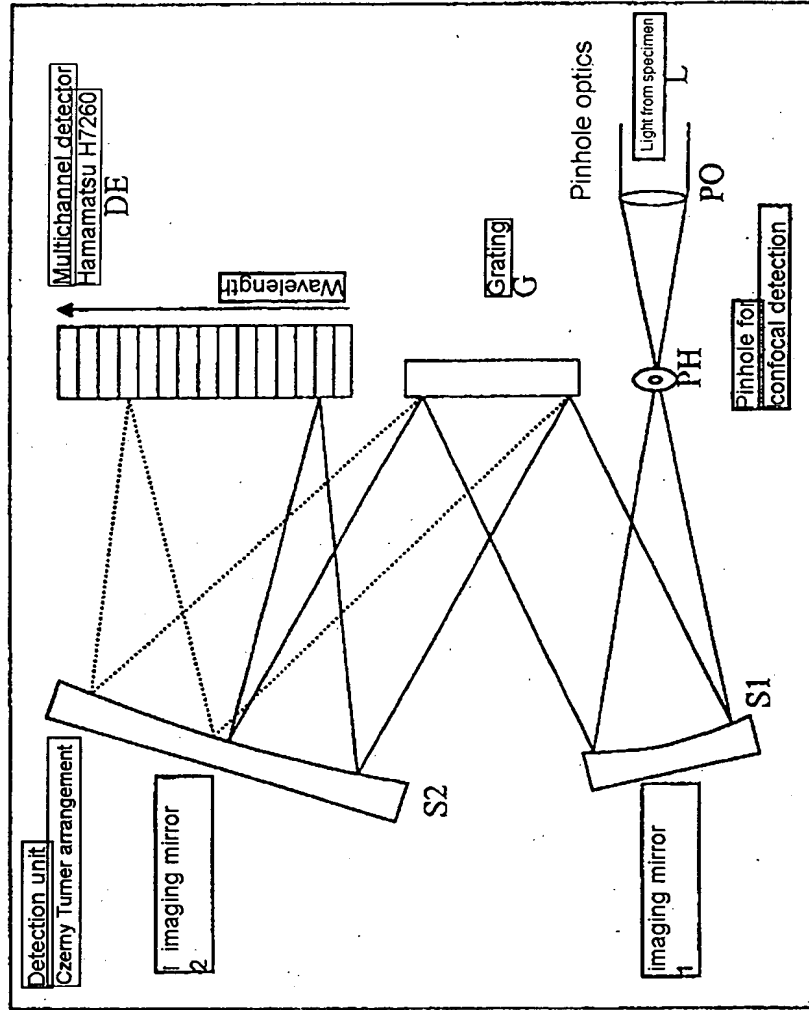
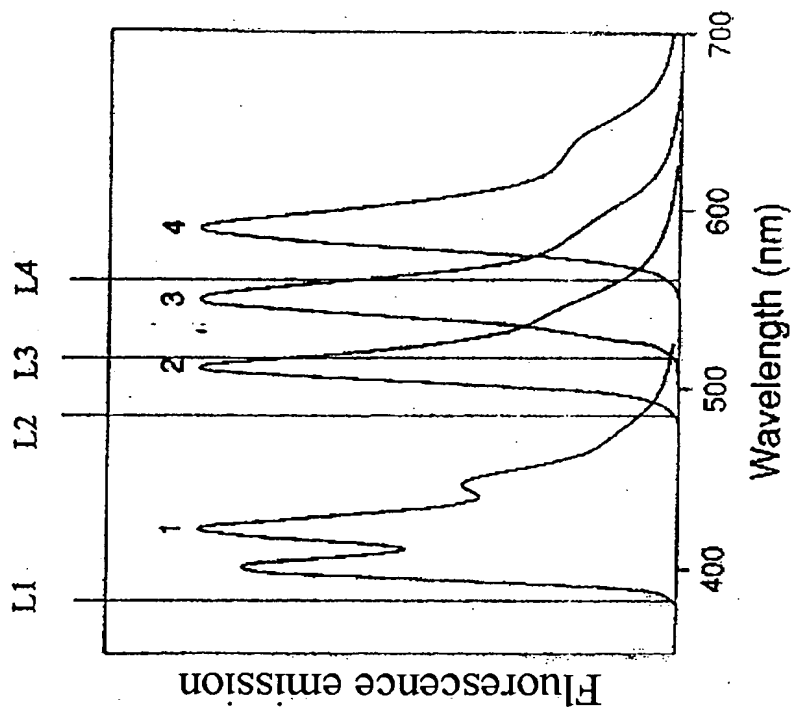
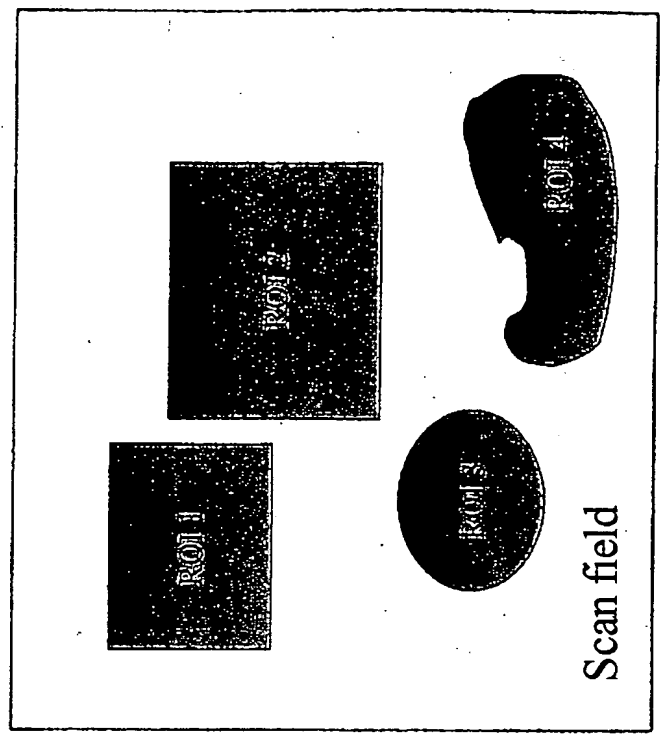


Figure: 6

Example for detector unit-optics construction



b.)



a.)

Figure: 7

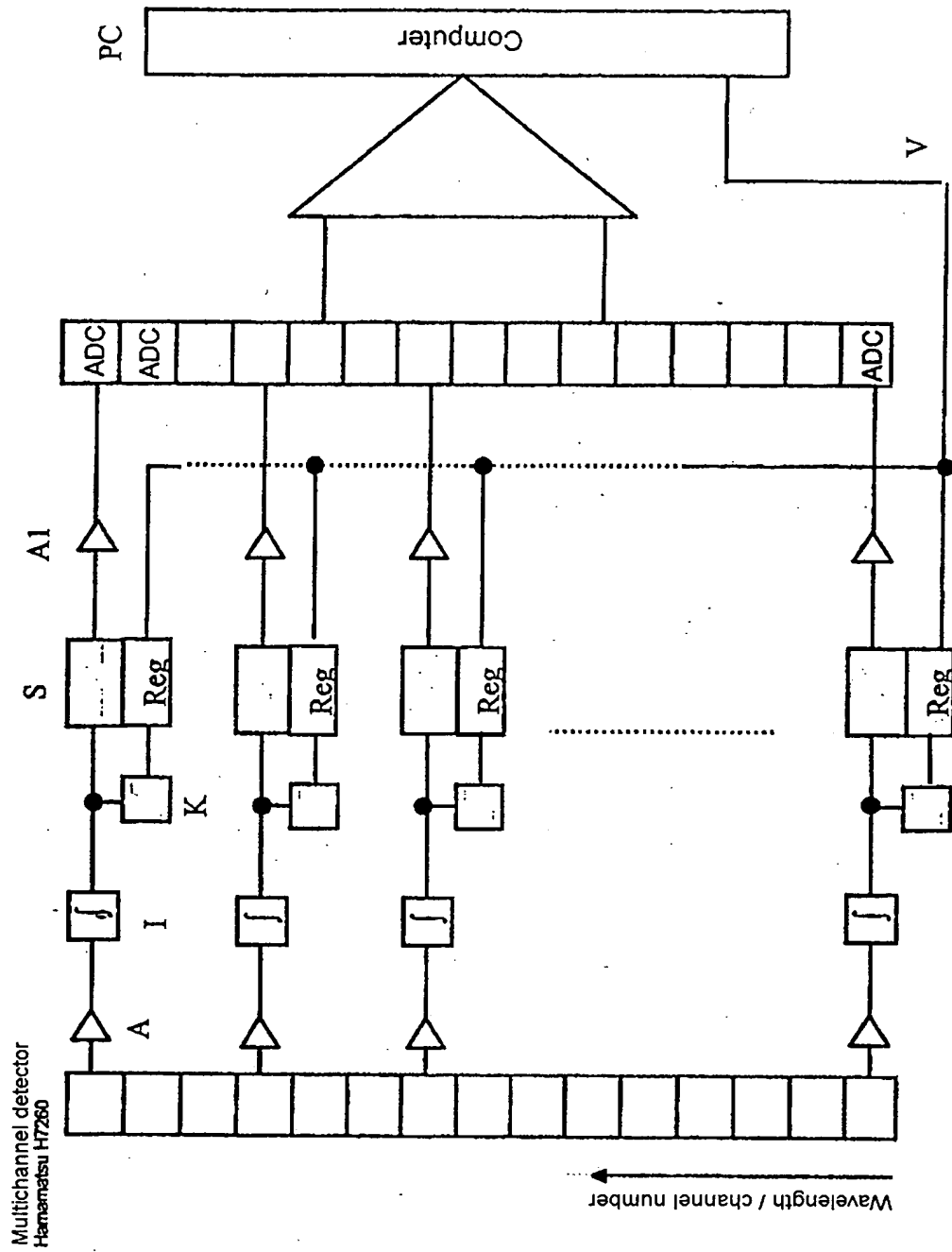


Figure 8

Construction example of electronics for digital evaluation

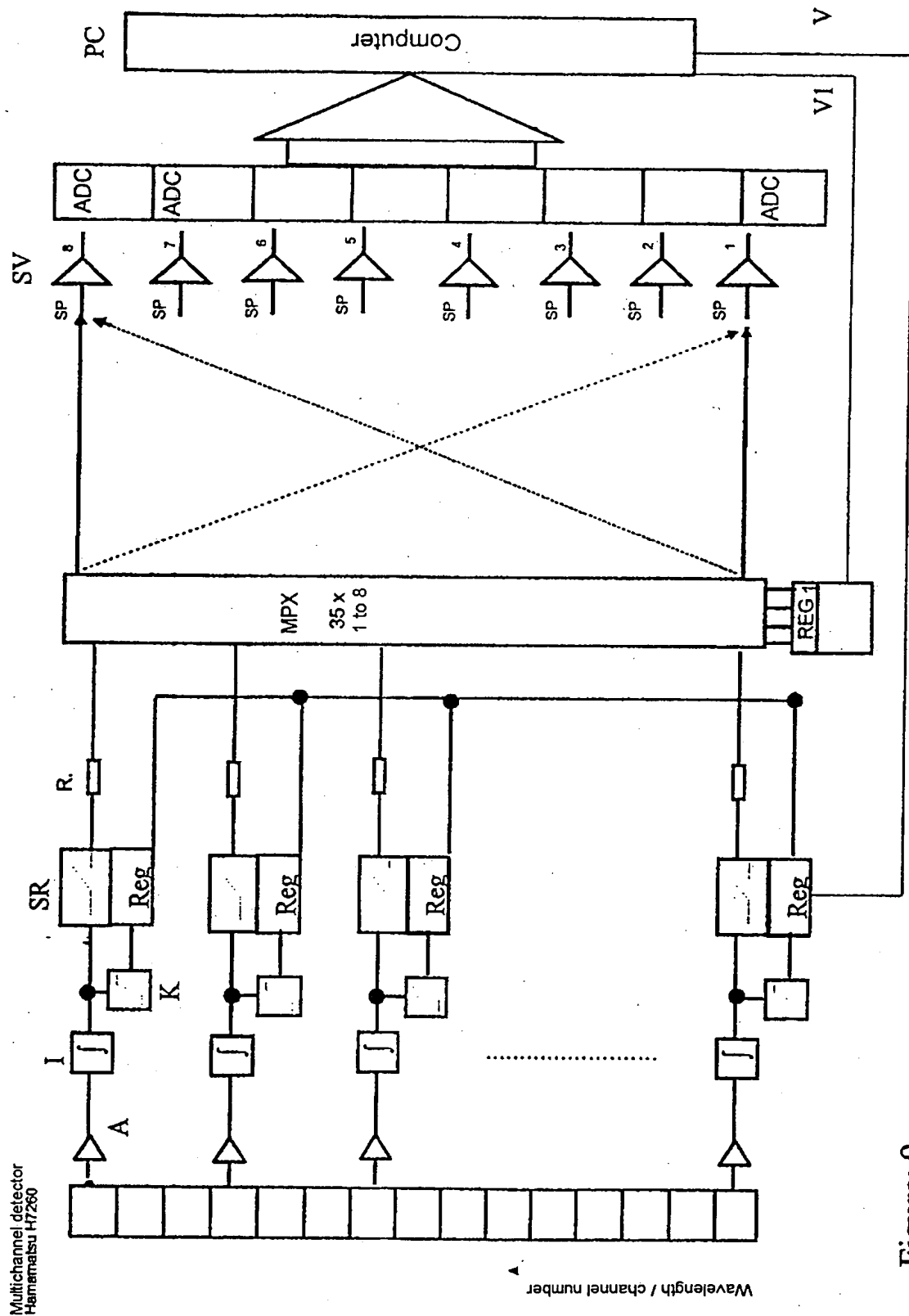


Figure: 9

Example of construction of electronics for analog signal processing